

E. Placing Stone Blanket Protection

Ensure that the stone blanket protection meets the materials Specifications for stone filter blanket as specified in Subsection 603.2, “Materials,” except stone size No. 357 will be allowed instead of size No. 467.

Place stone blanket protection to the limits shown on the Plans, or as directed by the Engineer.

Uniformly place this material to the thickness shown on the Plans and to a thickness tolerance of 0.5 in (\pm 15 mm).

Do not use stone blanket protection on slopes steeper than two horizontal to one vertical or in areas highly susceptible to erosion. Do not use plastic filter fabrics with stone blanket protection.

603.3.06 Quality Acceptance

General Provisions 101 through 150.

603.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

603.4 Measurement

This work is measured for payment in square yards (meters) of accepted material of the specified thickness. Area measurements are made parallel to the surface on which the material is placed. Plastic filter fabric will be measured as the area of rip rap placed and accepted. No separate measurement will be made for fabric overlap joints, seams, or vertical sections at toe of slopes. No separate measurement is made for grout or cushioning sand.

Plan dimensions are figured by the use of filled bags 12 by 18 by 6 in. (300 by 450 by 150 mm) thick.

When filled bags are less than Plan dimensions or are of varying lengths or width, Plan square yards (meters) will be used to determine pay quantities, if overall dimensions are equal to or greater than those shown on the Plans.

603.4.01 Limits

General Provisions 101 through 150.

603.5 Payment

This work will be paid for at the Contract Price per square yard (meter) of material complete in place.

Payment will be made under:

Item No. 603	Stone plain rip rap ____ in (mm) thick	Per square yard (meter)
Item No. 603	Stone dumped rip rap (<u>type</u>) ____ in (mm) thick	Per square yard (meter)
Item No. 603	Stone grouted rip rap (<u>thick</u>)	Per square yard (meter)
Item No. 603	Filter blanket	Per square yard (meter)
Item No. 603	Sand-cement bag rip rap, ____ in (mm) thick	Per square yard (meter)
Item No. 603	Stone blanket protection, ____ in (mm)	Per square yard (meter)
Item No. 603	Plastic filter fabric	Per square yard (meter)

603.5.01 Adjustments

General Provisions 101 through 150.

Section 607—Rubble Masonry**607.1 General Description**

This work includes constructing rubble masonry from classes such as coursed, random, and random range work, from roughly squared and dressed stone laid with or without mortar as specified on the Plans.

607.1.01 Definitions

General Provisions 101 through 150.

607.1.02 Related References**A. Standard Specifications**

Section 834—Masonry Materials

B. Referenced Documents

General Provisions 101 through 150.

607.1.03 Submittals

General Provisions 101 through 150.

607.2 Materials

Ensure that materials meet the requirements of the following specifications:

Material	Section
Stone for Masonry	834
Mortar and Grout	834

607.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

607.3 Construction Requirements**607.3.01 Personnel**

General Provisions 101 through 150.

607.3.02 Equipment

General Provisions 101 through 150.

607.3.03 Preparation

General Provisions 101 through 150.

607.3.04 Fabrication

General Provisions 101 through 150.

607.3.05 Construction

Construct rubble masonry as follows:

A. Shaping the Stone

Roughly square the stones on joints, beds, and faces. At angles and ends of walls, use selected stone roughly squared and pitched to line. If specified, finish the corners or angles in exterior surfaces with a chisel draft.

Before laying the stone in the wall, shape and dress it so that it will not loosen after it is placed. No dressing or hammering which will loosen the stone will be permitted after it is placed.

B. Laying the Stone

1. Decrease the stone thickness from the bottom to the top of wall.
2. Ensure that the headers in the heart of the wall are the same size as shown in the face and extend at least 12 in (300 mm) into the core or backing.
3. Ensure that headers in walls 2 ft (600 mm) or less in thickness extend entirely through the wall. The headers shall occupy at least 20 percent of the face of the wall.
4. Lay the masonry to line and in roughly leveled courses. Ensure that the bottom of the foundation is large, selected stones.
5. Lay the courses with leaning beds parallel to the natural bed of the material.
6. Regularly diminish the thicknesses of the courses, if varied, from the bottom to the top of the wall. Keep a surplus supply of stones at the site to select from.

7. When mortar masonry is specified:

- a. Clean each stone and saturate it with water before setting it. Clean and moisten the bed that will receive it.
- b. Bed the stones in freshly made mortar with full joints. Carefully settle the stones in place before the mortar sets.
- c. Do not permit spalls in the beds. Ensure that the joints and beds have an average thickness of not more than 1 in. (25 mm).
- d. Ensure that the vertical joints in each course break with the adjoining courses at least 6 in. (150 mm).
- e. Do not place vertical joints directly above or below a header joint.

If a stone is moved or if the joint is broken after the mortar has set, take the stone up and thoroughly clean the mortar from the bed and joints. Reset the stone in fresh mortar.

Do not lay the masonry in freezing weather or when the stone contains frost, except by permission and subject to required conditions.

NOTE: Do not lay the masonry in freezing weather or when the stone contains frost, except with permission.

- f. Whenever possible, properly point the face joints before the mortar sets. If joints cannot be pointed, rake them out to a depth of 1 in (25 mm) before the mortar sets.
Do not smear the stone face surfaces with the mortar forced out of the joints or the mortar used in pointing.
- g. Thoroughly wet the joints pointed after the stone is laid with clean water and fill with mortar.
- h. Drive the mortar into the joints and finish with an approved pointing tool.
- i. Keep the wall wet while pointing. In hot or dry weather, protect the pointed masonry from the sun and keep it wet for at least three days after the pointing is finished.

NOTE: Do not perform pointing in freezing weather or when the stone contains frost.

- j. After the pointing is completed and the mortar is set, thoroughly clean the walls and leave them in a neat condition.

8. Dry Rubble Masonry

When laying dry rubble:

- a. Take care that each stone takes a firm bearing no less than in three separate points upon the underlying course.
- b. Ensure that face joints are no greater than 1 in (25 mm) wide.
- c. Chink the open front and rear joints with spalls fitted to take firm bearing upon the top and bottom surfaces throughout the length of the stone.
- d. Fill the interstices in the heart of the wall with spalls. When specified, thoroughly slush the open joint on the rear surfaces with mortar to prevent water from seeping through the joints.

C. Weep Holes

Provide adequate drainage for retaining walls with weep holes as shown on the Plans or required by the Engineer.

When backfilling at weep holes, build chimneys and french drains extending through the parts of the fill to be drained. The cost of chimneys, weep holes, and french drains is included in the Contract Price for rubble masonry.

D. Copings

Use copings, bridge seats, and back walls made from the materials shown on the Plans. If not otherwise specified, they shall be Class A concrete.

Make concrete copings in sections at least 12 in (300 mm) thick and from 5 to 10 ft (1.5 to 3 m) long, extending the full width of the wall. Cast the sections in place or precast and set them in place in free mortar beds.

607.3.06 Quality Acceptance

General Provisions 101 through 150.

607.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

607.4 Measurement

This work is measured in cubic yards (meters) of accepted masonry. The dimensions shown on the Plans shall be used except for changes made by the Engineer.

Excavation for rubble masonry is not measured for separate payment.

607.4.01 Limits

General Provisions 101 through 150.

607.5 Payment

This work will be paid for at the Contract Price per cubic yard (meter) for mortar rubble masonry or dry rubble masonry complete in place.

Payment will be made under:

Item No. 607	Mortar rubble masonry	Per cubic yard (meter)
Item No. 607	Dry rubble masonry	Per cubic yard (meter)

607.5.01 Adjustments

General Provisions 101 through 150.

Section 608—Brick Masonry

608.1 General Description

This work includes laying brick in mortar.

608.1.01 Definitions

General Provisions 101 through 150.

608.1.02 Related References

A. Standard Specifications

Section 207—Excavation and Backfill for Minor Structures

Section 834—Masonry Materials

B. Referenced Documents

General Provisions 101 through 150.

608.1.03 Submittals

General Provisions 101 through 150.

608.2 Materials

Ensure that the materials meet the requirements of the following Specifications:

Brick for Masonry	834
Mortar and Grout	834

608.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

608.3 Construction Requirements

608.3.01 Personnel

General Provisions 101 through 150.

608.3.02 Equipment

General Provisions 101 through 150.